

REMARKS

Claims 1-20 are pending. Claims 1-20 have been rejected. Claims 2, 3 and 18 have been amended.

Rejection of claims 18-20 under 35 U.S.C. § 101

Claims 18-20 have been rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. It is respectfully submitted that amended claim 18 and thus claims 19 and 20, which depend from claim 18, are patentable.

Rejection of claims 1, 7, 8, 9, 11, 17 and 18 under 35 U.S.C. § 103(a)

Claims 1, 7, 8, 9, 11, 17 and 18 have been rejected under 35 U.S.C. §103(a) as being unpatentable over King (U.S. Patent No. 5, 187, 796) in view of Wang (U.S. Patent No. 5,187,796). It is respectfully submitted that claims 1, 7, 8, 9, 11, 17 and 18 are patentable because there is no apparent suggestion or motivation to combine the references and because the claimed invention is patentably distinct from the cited references alone or in combination.

King teaches a processor for computing a dot product but does not mention or suggest the need to calculate cross products. Wang fails to remedy the deficiency of King. Wang teaches a device which uses an algorithm for calculating a vector cross product (column 12, table 2) but does not mention or suggest the need to calculate dot products. Thus, any proper combination of King and Wang fails to teach Applicants' invention as explicitly recited in the claims. Further, there would be no motivation to combine King and Wang as there is an absence of a reference to calculating dot products in Wang and to calculating cross products in King.

Neither Wang nor King alone or in combination teach or suggest at least "receiving ... a first signal indicating whether to generate a cross product or a dot product" as appears in Applicant's independent claims 1, 11 and 18, from which claims 7, 8, 9 and 17 depend. Withdrawal of the 103(a) rejections of claim 1, 7, 8, 9, 11, 17 and 18 is therefore respectfully requested.

Rejection of claims 4, 5, 10, 12, 13, 14, 15, 16, 19 and 20 under 35 U.S.C. § 103(a)

Claims 4, 5, 10, 12, 13, 14, 15, 16, 19 and 20 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over King (U.S. Patent No. 5, 187, 796) in view of Wang (U.S. Patent No. 5,187,796) and Foley, *Computer Graphics: Principles and Practice, 2nd Edition*. It is respectfully submitted that claims 4, 5, 10, 12, 13, 14, 15, 16, 19 and 20 are patentable because neither Wang nor King nor Foley teach or suggest "receiving ... a first signal indicating whether to generate a cross product or a dot product" as appears in Applicant's independent claims 1, 11 and 18, from which claims 4, 5, 10, 12, 13, 14, 15, 16, 19 and 20 depend.

Rejection of claim 3 under 35 U.S.C. § 112 first paragraph

Claim 3 has been amended to clarify the subject matter claimed. Applicant respectfully submits that the second signal (the COMP signal) is fully enabled in Applicant's disclosure. In particular, the specification as originally filed states at page 10 lines 20-22: "On the other hand, the input signal COMP indicates the vector component C_{COMP} (e.g., x, y or z cross product vector component) of a cross product to be determined." As such, the second signal operates during the cross product computation. Withdrawal of the 112 rejection of claim 3 is respectfully requested.

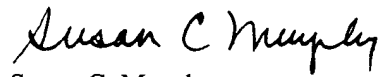
Rejection of claims 2, 3 and 18 under 35 U.S.C. § 112 second paragraph

Claim 2 has been amended to overcome the antecedent basis problem. Applicants respectfully submit that claim 3 is not incomplete for omitting essential elements for the reason stated above. It is respectfully submitted that claim 18 is patentable for the same reason. Withdrawal of the 112 rejections of claims 2, 3 and 18 are thus respectfully requested.

In view of the above amendments and remarks, Applicant respectfully submits that the present application is in condition for allowance. Reconsideration of the application and an early Notice of Allowance are respectfully requested.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

Respectfully submitted,

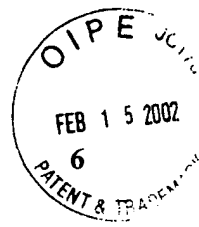


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Claims 2, 3 and 18 were amended as follows:

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2. (Amended) The dual mode device as recited in claim 1, wherein the dual mode unit outputs the cross product component when the [select] first signal indicates generation of the cross product component and wherein the dual mode unit outputs the dot product when the [select] first signal indicates generation of the dot product.

3. (Amended) The dual mode device as recited in claim 1, wherein the dual mode controller receives a second signal for indicating the cross product component to be generated and selects the vector components for evaluating the cross product component [or the dot product] in response to the second signal.

18. (Amended) In a computer system having a graphics subsystem comprising a dual mode device, the dual mode device comprising a dual mode controller and a dual mode unit, a method for generating a cross product or a dot product from a first vector and a second vector, the first vector having a first set of components and the second vector having a second set of components, the method comprising:

receiving the first and second vectors for generating a cross product component or a dot product at the dual mode controller;

receiving a first signal indicating whether to generate a cross product component or a dot product at the dual mode controller;

selecting vector components for evaluating the cross product component or the dot product in response to the first signal;

sending the selected vector components to the dual mode unit; and

in response to the first signal and the selected vector components, generating the cross product component when the first signal indicates generation of the cross product component and generating the dot product when the first signal indicates generation of the dot product.